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EXAMINER	
MEW, KEVIN D	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/880,793	RAM ET AL.	
	Examiner	Art Unit	
	Kevin Mew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *20-22,24-29,46-48 and 50-55* is/are allowed.

6)☒ Claim(s) *1-19,23,25,30-45,49 and 56-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Final Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 12/20/2005 have been considered 1-56 have been considered. Claims 57-59 have been newly added by applicant. Claims 1-59 are currently pending.

2. Acknowledgement is made of the amended claims 19, 24-26, 45, 50-52 regarding the claim objections set forth in the previous Office Action. The corrections are acceptable and the claim objections have been withdrawn.

3. Acknowledgement is made of the amended claims 21-22, 47-48 regarding the 35 U.S.C. 112, second paragraph rejection set forth in the previous Office Action. The corrections are acceptable and the 35 U.S.C. 112, second paragraph rejection has been withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-14, 16, 18-19, 23, 30-40, 42, 44-45, 49, 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal et al. (USP 6,847,626).

Regarding claim 1, Carneal discloses a method for communicating with a large number of remote satellite locations (**remote units in a satellite communications environment**, 108A, 108B, 108C, Fig. 2) comprising simultaneously in random access mode communicating with a plurality of a first set of remote terminal devices (**communicating in a contention-type access block**, col. 6, lines 41-51) and communicating with a plurality of second remote terminal devices in a dedicated mode (**communicating in a non-contention access block**, col. 6, lines 52-59) using the same overlapping channels (**sharing the same communication channel resources**, col. 6, lines 13-52).

Carneal does not explicitly show using the same overlapping time slot within one of a plurality of channels is being used for the random access mode and the dedicated mode.

However, Carneal discloses that remote units are assigned a time slot in which to transmit (col. 6, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation method of Carneal such that both the non-

contention (random access mode) and contention access blocks (dedicated access mode) fall within the same assigned time slot for transmission.

The motivation to do so is to allow the remote units to be able to share the communication resources provided by the hub station in a TDMA system.

Regarding claim 30, Carneal discloses a system for communicating with a large number of remote satellite locations (Fig. 2) comprising:

a plurality of a first set of remote terminal devices (**remote units**, 108A, 108B, Fig. 2);

a plurality of second remote terminal devices operating in a dedicated mode (**communicating in a non-contention access block**, col. 6, lines 52-59 and 108C, Fig. 2) using the same overlapping channels (**sharing the same communication channel resources**, col. 6, lines 13-52); and

a hub site (**hub station 104**, see Fig. 2) which determines threshold criteria for determining when said remote terminal devices are active (**the hub station uses a continue to transmit within a certain period of time as a threshold**, col. 10, lines 1-19), and allocates said channels (**dedicated resources within the non-contention access block are assigned to these remote units**, col. 10, lines 1-19).

Regarding claim 2, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 1, wherein when one of said plurality of second remote terminal devices (**remote units**, col. 4, lines 1-16 and Fig. 2) wants access to an inbound channel of one of said large number of remote satellite locations (**hub station**, 104, Fig. 2), said

one of said a plurality of second remote terminal devices contends for an inbound channel (**contention-type access block is used for initial attempts to transfer blocks of data from the remote units to the hub station**, col. 6, lines 41-51), and if a collision occurs with another of said plurality of second remote terminal devices or plurality of first remote terminal devices (**if collision occurs, the hub station assigns to each remote unit involved in the collision a resource within a non-contention access communication resource over which the remote unit retransmits the block of data**, col. 4, lines 1-16), transmission from said one of said plurality of second remote terminal devices is repeated at one of random/pseudo random times, using random/pseudo random inbound resources, and random/pseudo random times using random/pseudo random inbound resources (**transmission using pseudo random channel resources**, col. 5, lines 62-67 and col. 6, lines 1-12), until said one of said plurality of second remote terminal devices captures an inbound channel (**dedicated resources are assigned to each remote unit being involved in a collision**, col. 4, lines 1-16).

Regarding claims 3, 31, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein said one of said plurality of second remote terminal devices determines if there is a high likelihood that a moderate to long transmission is being initiated (**when there is additional information to be transmitted by a remote unit within a certain period of time**, col. 10, lines 1-19), and when such a determination is made said one of said plurality of second remote terminal devices requests allocation of an assigned inbound channel (**a dedicated non-contention access block is assigned to the remote unit for transmission of data**, col. 10, lines 1-19).

Regarding claims 4, 32, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein if said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been active for a predetermined period of time (**when a remote unit continues to transmit data within a certain period of time after the latest transmission**, col. 10, lines 1-19), said one of said plurality of second remote terminal devices directly accesses said inbound channel (**the remote unit accesses the indicated resource over the non-contention access block for transmission of data**, col. 10, lines 1-19).

Regarding claims 5, 33, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein said one of said plurality of second remote terminal devices determines that said one of said plurality of second remote terminal devices has been sufficiently active during a sliding window (**when a remote unit has additional data to transmit within a certain period of time after the latest transmission**, col. 10, lines 1-19), said one of said plurality of second remote terminal devices directly accesses said channels (**the remote unit accesses the indicated resource within the non-contention access block for transmission of data**, col. 10, lines 1-19).

Regarding claims 6, 34, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein when an inbound one of said channels has been allocated to said one of said plurality of second remote terminal

devices (**once the indicated resource has been assigned to the remote unit for transmission**, col. 10, lines 1-19), said one of said plurality of second remote terminal devices can no longer randomize its inbound transmissions and transmits on a predetermined portion of said inbound channel (**the remote unit needs to transmit over the indicated resource within non-contention access block**, col. 10, lines 1-19) whenever said one of said plurality of second remote terminal devices has inbound data to transmit (**when the remote has additional data to transmit**, col. 10, lines 1-19).

Regarding claims 7, 35, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 2 and 30, wherein inactive ones of said plurality of second remote terminal devices are configured to randomize their transmissions over said channels (**ALOHA access channel may be used as the contention-type access block for initial attempt to transfer data from remote units to the hub station**, col. 6, lines 41-51 and Fig. 2).

Regarding claim 8, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 1, wherein a hub site determines threshold criteria for determining when said remote terminal devices are active (**the hub station uses a continue to transmit within a certain period of time as a threshold**, col. 10, lines 1-19), and allocates said channels (**dedicated resources within the non-contention access block are assigned to these remote units**, col. 10, lines 1-19).

Regarding claims 9, 36, Carneal discloses a method for communicating with a large number of remote satellite locations ms recited in claims 8 and 35, wherein said hub site gathers traffic statistics from said remote terminal devices, identifies active ones of said remote terminal devices using said traffic statistics (**identifies which remote unit with more than 10% loading capacity**, col. 9, lines 40-57), and allocates inbound ones of said channels to said active remote terminal devices (**a non-contention access block is assigned to the remote unit with more than 10% loading capacity**, col. 9, lines 40-57), and informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (**the non-contention access type allocation response is transmitted as a broadcast message**, col. 7, lines 53-64).

Regarding claim 10, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 3, wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (**the remote unit informs other remote units of the non-contention access type allocation response via a broadcast message transmitted the hub station**, col. 7, lines 53-64).

Regarding claims 11, 37, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 33, wherein each of said plurality of second remote terminal devices monitors their transmissions and notifies said hub site when it becomes active and is likely to have a medium to long transmission (**the remote unit notifies**

the hub station that it has additional data to transmit within a certain period of time, col. 9, lines 58-67 and col. 10, lines 1-19).

Regarding claims 12, 38, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 11 and 33, wherein said hub site allocates a portion of inbound ones of said channels (**indicated resource within a non-contention access block**) to a newly active one of said plurality of second remote terminal devices (col. 10, lines 1-19).

Regarding claims 13, 39, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 1 and 33, wherein collisions between inbound packets from different ones of said first and second remote terminal devices are prevented by allocating one of frequency, time slot, and frequency and time slot to said ones of said first and second remote terminal devices that generate the most inbound traffic (**selecting a non-contention type access block for use by the remote unit that generates more than 10% loading on the contention-type access block**, col. 9, lines 40-57).

Regarding claims 14, 40, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 13 and 39, wherein when there are more active ones of said first and second remote terminal devices than there are channels (**should the loading on the contention-type access block becomes so high that it is dominated by collisions**), each of said first and second remote terminal device is allocated a mini-slot (the

system uses the reserved block as a means of requesting a scheduled resource, col. 10, lines 59-67).

Regarding claims 16, 42, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 14 and 40, wherein said mini-slot is a time slot at an intermittent frequency (**the non-contention access block is assigned a time slot at a certain frequency slot**, col. 13, lines 39-43).

Regarding claims 18, 44, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 14 and 40, wherein inbound one of said channels are allocated first to voice traffic followed by data traffic (**voice is allocated on non-contention type access block while data is allocate on contention type access block**, col. 11, lines 59-67 and col. 12, lines 1-6).

Regarding claims 19, 45, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 40, wherein said hub site calculates a load for each of said first and second remote terminal device and retains said loads in memory (col. 9, lines 40-57).

Regarding claims 23, 49, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claims 8 and 33, wherein said hub site

maintains a number of said channels and frequencies of all of said channels said first and second remote terminal devices can transmit on in memory (col. 13, lines 39-43).

Regarding claim 56, Carneal discloses a system for communicating with a large number of remote satellite locations comprising:

a plurality of a first set of remote terminal devices (remote units 108A, 108B, Fig. 2); and

a plurality of second remote terminal devices operating in a dedicated mode (**communicating in a non-contention access block**, col. 6, lines 52-59 and 108C, Fig. 2) using the same overlapping channels (sharing the same communication channel resources, col. 6, lines 13-52), wherein said one of said plurality of second remote terminal devices informs said plurality of first remote terminal devices and said plurality of second remote terminal devices of said allocation (**the remote unit informs other remote units of the non-contention access type allocation response via a broadcast message transmitted the hub station**, col. 7, lines 53-64).

Regarding claim 57, Carneal discloses a method for communicating with a plurality of VSAT terminals (**remote units**, elements 108A, 108B, 108C, Fig. 2) using both dedicated access mode (**communicating in a non-contention access block**, col. 6, lines 52-59) and random access mode (**communicating in a contention-type access block**, col. 6, lines 41-51).

Carneal does not explicitly show simultaneously using a time slot within a channel for both dedicated access mode and random access mode.

However, Carneal discloses that remote units in a satellite communication system are assigned a time slot in which to transmit (col. 6, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation method of Carneal such that both the non-contention (random access mode) and contention access blocks (dedicated access mode) fall within the same assigned time slot for transmission.

The motivation to do so is to allow the remote units to be able to share the communication resources provided by the hub station in a TDMA system.

Regarding claim 58, Carneal discloses a method for communicating with a plurality of VSTA terminals allowing packets to be sent in dedicated access mode (**communicating in a non-contention access block**, col. 6, lines 52-59) and random access mode (**communicating in a contention-type access block**, col. 6, lines 41-51).

Carneal does not explicitly show intentionally allowing collisions between packets sent in dedicated access mode and random access mode.

However, Carneal discloses that remote units in a satellite communication system are assigned a time slot in which to transmit (col. 6, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation method of Carneal such that both the non-contention (random access mode) and contention access blocks (dedicated access mode) fall within the same assigned time slot and may collide during transmission.

The motivation to do so is to allow the remote units to be able to share the communication resources provided by the hub station in a TDMA system.

Regarding claim 59, Carneal discloses a method comprising using the same channel to simultaneously send data in dedicated access mode (**communicating in a non-contention access block**, col. 6, lines 52-59) and random access mode (**communicating in a contention-type access block**, col. 6, lines 41-51).

Carneal does not explicitly show the data in both modes may occur in the same time-slot and collide.

However, Carneal discloses that remote units in a satellite communication system are assigned a time slot in which to transmit (col. 6, lines 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the resource allocation method of Carneal such that both the non-contention (random access mode) and contention access blocks (dedicated access mode) fall within the same assigned time slot and may collide during transmission.

The motivation to do so is to allow the remote units to be able to share the communication resources provided by the hub station in a TDMA system.

5. Claims 15, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carneal et al. in view of Ho (USP 6,747,959).

Regarding claims 15, 41, Carneal discloses all the aspects of the claimed invention set forth in the rejection of claims 14 and 40 above, except fails to explicitly show said mini-slot is a

time slot every third frame. However, Ho discloses that each frame in an uplink channel has a selectable number of minislots (col. 2, lines 6-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the minislot assignment of Carneal with the teaching of Ho in providing a selectable number of minislots within a frame such that the minislot is a time slot every third frame. The motivation to do so is to dynamically multiplex voice and data in a multi-access channel that provides a predetermined quality of service.

Regarding claims 17, 43, Carneal discloses a method for communicating with a large number of remote satellite locations as recited in claim 14 and 40. Carneal also discloses (the non-contention access block is assigned a time slot at a certain frequency slot, col. 13, lines 39-43), except fails to explicitly show said mini-slot is a time slot every third frame and at an intermittent frequency. However, Ho discloses that each frame in an uplink channel has a selectable number of minislots (col. 2, lines 6-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the minislot assignment of Carneal with the teaching of Ho in providing a selectable number of minislots within a frame such that the minislot is a time slot every third frame. The motivation to do so is to dynamically multiplex voice and data in a multi-access channel that provides a predetermined quality of service.

Response to Arguments

6. Applicant's arguments with respect to claims 1-14, 16, 18-19, 23, 30-40, 42, 44-45, 49, 56-59 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 20-22, 24-26, 27, 28-29, 46-48, 50-52, 53, 54-55 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In claims 20, 46, wherein said hub site correlates said loads for each of said first and second remote terminal devices with a last time slot in which a burst was last received from each of said first and second remote terminal devices, and maintains said correlated loads in an allocation table.

In claims 24, 50, wherein said first and second remote terminal devices have a multi-slot counter, said mini-slot counter in each of said first and second remote terminal device being synchronized with said hub site and each of said first and second remote terminal devices.

In claims 25, 51, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$L_{new} = L_{old} (1- \tau)^n + \tau$ where τ is a configurable constant, n is the number of time-slots since a last time-slot on which a packet was received from a remote terminal device, and L_{old} is the previous load value of the remote terminal device.

In claims 26, 52, wherein said load for each of said first and second remote terminal device is calculated according to the following formula:

$L_{new} = L_{old} * M * (1 - 1/N)^n + M / N$ where M is a normalizing constant M, N is a time constant, which is the number of time-slots in T seconds (where T is a configuration parameter), and τ is 1/N.

In claims 27, 53, wherein said allocation table comprises information relating to a number of frequencies a remote terminal device is capable of utilizing, a number of mini-slots said remote terminal device may receive, a total number and identification of free inbound ones of said channels and mini-slots, a minimum and assigned maximum load value allocated to each of said first and second remote terminal device, current inbound resources allocated to each of said plurality of first and second remote terminal devices, whether said remote terminal device may become an active site, and whether said remote terminal device has any weighting factors associated with its load calculations.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,740,166 to Ekemark et al.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Duong can be reached on 571-272-3164. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



FRANK DUONG
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